

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) An apparatus for reading and/or writing data from and /or onto a data carrier, said data carrier containing wobbled tracks, said apparatus ~~having comprising:~~

\_\_\_\_\_scanning means for scanning said tracks<sub>i</sub>;

\_\_\_\_\_detection means for detecting at least two elementary signals when scanning said tracks<sub>i</sub>;

\_\_\_\_\_wobble recovery means for generating a wobble signal from said at least two elementary signals<sub>i</sub> and

\_\_\_\_\_wobble processing means for filtering said at least two elementary signals with at least an adaptive filter and for generating an improved wobble signal by subtracting said filtered elementary signals from said wobble signal<sub>i</sub>.

said apparatus further comprising:

\_\_\_\_\_data recovery means for generating a data signal from said at least two elementary signals, wherein said adaptive filter uses filtering coefficients chosen so as to minimize the cross-correlation between said improved wobble signal and said data signal, and wherein said filtering coefficients are updated by using an iterative gradient algorithm minimizing a cost function having an instantaneous value equal to the instantaneous value of the squared product of said improved wobble signal and said data signal.

2-3. (Cancelled).

4. (Currently Amended) ~~An~~ The apparatus as claimed in claim 1,  
wherein said adaptive filter uses filtering coefficients chosen so  
as to minimize the difference between a scaled version of the  
improved wobble signal and a reference wobble signal reconstructed  
5 on the basis of the generated wobble signal.

5. (Currently Amended) An optical unit ~~having comprising:~~  
\_\_\_\_\_scanning means for scanning wobbled tracks of a data  
carrier, ~~i.~~

5 \_\_\_\_\_detection means for detecting at least two elementary  
signals when scanning said tracks, ~~i.~~

\_\_\_\_\_wobble recovery means for generating a wobble signal from  
said at least two elementary signals, ~~i.~~ and

\_\_\_\_\_wobble processing means for filtering said at least two  
elementary signals with at least an adaptive filter and for

10 generating an improved wobble signal (IPP) by subtracting said  
filtered elementary signals from said wobble signal, ~~i.~~

said optical unit further comprising:

15 \_\_\_\_\_data recovery means for generating a data signal from said  
at least two elementary signals, wherein said adaptive filter uses  
filtering coefficients chosen so as to minimize the cross-  
correlation between said improved wobble signal and said data  
signal, and wherein said filtering coefficients are updated by  
using an iterative gradient algorithm minimizing a cost function

20 | having an instantaneous value equal to the instantaneous value of  
the squared product of said improved wobble signal and said data  
signal.

6. (Cancelled).

7. (Currently Amended) ~~An~~ The optical unit as claimed in claim  
5, wherein said adaptive filter uses filtering coefficients chosen  
so as to minimize the difference between the improved wobble signal  
and a reference wobble signal reconstructed on the basis of the  
5 generated wobble signal.

8. (Currently Amended) A wobble processing method for  
processing a wobble signal generated from at least two elementary  
signals detected by scanning of a wobbled track of a data carrier,  
comprising the steps of:

5 | ~~\_\_\_\_\_ a filtering step for filtering said at least two~~  
~~elementary signals with at least an adaptive filter,; and~~  
~~\_\_\_\_\_ a subtracting step for subtracting said filtered~~  
~~elementary signals from said wobble signal, thereby generating an~~  
~~improved wobble signal.~~

10 | \_\_\_\_\_ wherein said filtering step uses filtering coefficients  
chosen so as to minimize the cross-correlation between said  
improved wobble signal and a data signal generated from said at  
least two elementary signals.

15 | and wherein said filtering coefficients are updated by  
using an iterative gradient algorithm minimizing a cost function  
having an instantaneous value equal to the instantaneous value of  
the squared product of said improved wobble signal and said data  
signal.

9. (Cancelled).

10. (Currently Amended) ~~A~~The wobble processing method as  
claimed in claim 8, wherein said filtering step uses filtering  
coefficients chosen so as to minimize the difference between a  
scaled version of the improved wobble signal and a reference wobble  
5 signal reconstructed on the basis of the generated wobble signal.

11. (Currently Amended) A computer-readable medium having a  
program comprising instructions for implementing a wobble  
processing method as claimed in ~~one of claims~~claim 8 ~~to or~~ 10, when  
said program is executed by a processor.

12. (Currently Amended) ~~An~~The apparatus as claimed in ~~claims~~  
~~claim 1 or 2 comprising,~~ wherein said apparatus further comprises  
sampling means for sampling said at least two elementary signals at  
a frequency lower than the data bit rate.